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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/381,588	09/20/1999	STEVEN JAMES SHATTIL	022950PCTUS	4149
7590	07/11/2005			EXAMINER
STEVE SHATTIL 4980 MEREDITH WAY SUITE 201 BOULDER, CO 80303				BURD, KEVIN MICHAEL
			ART UNIT	PAPER NUMBER
			2631	

DATE MAILED: 07/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/381,588	SHATTIL, STEVEN JAMES
	Examiner Kevin M. Burd	Art Unit 2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 18 April 2005.  
 2a) This action is FINAL.                            2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 44-136 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) 44-96, 100, 101, 110, 112-121, 125, 126 and 135 is/are allowed.  
 6) Claim(s) 97-99, 102-109, 111, 122-124, 127-134, 136 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_

5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_

1. This office action, in response to the amendment filed 4/18/2005, is a final office action.

***Response to Arguments***

2. Applicant's arguments with respect to the rejections of claims 82, 87, 88, 96, 101, 116, 121 and 126 under 35 USC 102(b) have been fully considered and are persuasive. Therefore, the rejections have been withdrawn.
3. Applicant's arguments, filed 9/19/2004, regarding claims 97-99, 102-109, 111, 122-124, 127-134 and 136 have been fully considered but they are not persuasive.

Regarding claims 97-99, Tomisato discloses the method of receiving and the receiver stated in the claims. No definition of the carrier interferometry signal is provided in the claims.

Regarding claims 102 and 103, Posner discloses producing at least one pulse modulated with one of the data symbols in column 3, lines 32-35. Posner states the pulse train is applied as pulse time modulation onto a carrier signal. The pulse function operates on the signal such the signal includes sinusoids having non-zero values at predetermined frequencies and zero values at frequencies other than the predetermined frequencies (column 3, lines 35-39).

Regarding claims 104-106, Posner discloses impressing the at least one information symbol on the at least one waveform (column 4, lines 1-24). Posner

discloses the method of receiving and the receiver stated in the claims. No definition of the carrier interferometry signal is provided in the claims.

Regarding claim 107-109, Posner discloses values of the pulse sequence are equal to the information values. The pulse train represents the envelope amplitude information (column 3, lines 27-32). The pulses correspond to those values.

Regarding claim 111, Posner discloses the pulse train is derived from an envelope signal containing amplitude information (column 3, lines 61-62) and contains both angle and envelope information (column 4, lines 1-10).

Claims 122-124, 127-134 and 136 are rejected for the reasons stated in the previous office action.

For these reasons and the reasons stated in the previous office action, the rejections of these claims are maintained.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 97-99 and 122-124 are rejected under 35 U.S.C. 102(b) as being anticipated by Tomisato et al (US 5,504,783).

Regarding claim 97, Tomisato discloses a method of receiving a communication signal comprising a plurality of carrier signals having a plurality of frequencies and

modulating the carrier signals with at least one information signals (figure 16 and column 15, lines 55-60). The carriers are different and each having a phase offset (figure 2) and produce pulses that are “substantially orthogonal in time” (figure 12(a) - 12(d)). The received signals are combined as shown in figure 20.

Regarding claims 98 and 99, Tomisato discloses a method of receiving a communication signal comprising a plurality of carrier signals having a plurality of frequencies and modulating the carrier signals with at least one information signals (figure 16 and column 15, lines 55-60). The received signals are input to the filters 253. The carriers are different and each having a phase offset (figure 2) and produce pulses that are “substantially orthogonal in time” (figure 12(a) - 12(d)). The received signals are combined as shown in figure 20. A decision device 86 is coupled to the combiner 85.

Regarding claims 122-124, the carriers are provided for frequency hopping (column 8, lines 38-47).

5. Claims 102-109 and 111 are rejected under 35 U.S.C. 102(b) as being anticipated by Posner et al (US 5,249,201).

Regarding claims 102-104, Posner discloses a method of generating a multi-carrier communication signal transmitted by a communication device. Figure 6a shows a duration modulated pulse train (column 4, lines 67-68). Multiple carrier signals are used in the transmission (title). Data to be transmitted is received and data is mapped to the pulse trains. The pulse trains are staggered in time by one pulse period. The carrier

signal is modulated by the pulse train and amplified and the result is combined to produce the output signal (column 4, lines 11-24). Figures 6a and 7a show the signal having non-zero values at certain times and zero values at other times.

Regarding claims 105-109, Posner discloses a transmitter for generating a multi-carrier communication signal transmitted by a communication device. Figure 6a shows a duration modulated pulse train (column 4, lines 67-68). Multiple carrier signals are used in the transmission (title). Data to be transmitted is received and data is mapped to the pulse trains. The pulse trains are staggered in time by one pulse period. The carrier signal is modulated by the pulse train and amplified and the result is combined to produce the output signal (column 4, lines 11-24). Figures 6a and 7a show the signal having non-zero values at certain times and zero values at other times.

Regarding claim 111, Posner discloses a transmitter for generating a multi-carrier communication signal transmitted by a communication device. Figure 6a shows a duration modulated pulse train (column 4, lines 67-68). Multiple carrier signals are used in the transmission (title). Data to be transmitted is received and data is mapped to the pulse trains. The pulse trains are staggered in time by one pulse period. The carrier signal is modulated by the pulse train and amplified and the result is combined to produce the output signal (column 4, lines 11-24). Figures 6a and 7a show the signal having non-zero values at certain times and zero values at other times. The pulses shown in the figures are orthogonal in time.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 127-134 and 136 are rejected under 35 U.S.C. 103(a) as being unpatentable over Posner et al (US 5,249,201).

Regarding claims 127-134 and 136, Posner discloses the communication system and method of using the system as disclosed above in paragraph 5. Posner does not disclose the system is a frequency hopping system. However, it is well known in the art spread spectrum communications, that frequency hopping systems are useful in communicating large amounts of data with few errors. By hopping frequencies, interference is less likely to corrupt a large amount of data since the system will only transmit on one frequency (or hop) for a limited period of time. Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to utilize frequency hopping in the system of Posner for the reason stated above.

***Allowable Subject Matter***

7. Claims 44-96, 100, 101, 110, 112-121, 125, 126 and 135 are allowed.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M. Burd whose telephone number is (571) 272-3008. The examiner can normally be reached on Monday - Friday 9 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Kevin M. Burd*  
Kevin M. Burd  
7/10/2005

**KEVIN BURD  
PRIMARY EXAMINER**